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Report On

Specific Absorption Rate Testing of the
QinetiQ Bracer™ PTT Handset, Part Number 10073537-101

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Document 75942542 Report 02 Issue 1 **December 2018**

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REPORT ON	Specific Absorption Rate Testing of the QinetiQ Bracer™ PTT Handset, Part Number 10073537-101 Document 75942542 Report 02 Issue 1 December 2018
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APPROVED BY	**Nigel Grigsby** Authorised Signatory
DATED	07 December 2018

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SECTION 1

REPORT SUMMARY

Specific Absorption Rate Testing of the
QinetiQ Bracer™ PTT Handset, Part Number 10073537-101

1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Specific Absorption Rate Testing of the QinetiQ Bracer™ PTT Handset, Part Number 10073537-101 to the requirements of KDB 447498 D01 v06 General RF Exposure Guidance.

Objective	To perform Specific Absorption Rate Testing to determine the Equipment Under Test's (EUT's) compliance with the requirements specified of KDB 447498 D01 v06 General RF Exposure Guidance, for the series of tests carried out.
Applicant	QinetiQ
Manufacturer	QinetiQ
Manufacturing Description	Bracer™ PTT Handset
Model Number	10073537-101
Serial Number	SOFDEV003
Number of Samples Tested	1
Hardware Version	BM1800449 v0.5
Software Version	Hoplon Test Application v2.0.1.2
Battery Cell Manufacturer	Lincad
Battery Model Number	404253-2001
Test Specification/Issue/Date	KDB 447498 D01 v06 General RF Exposure Guidance
Start of Test	05 June 2018
Finish of Test	05 June 2018
Related Document(s)	FCC 47CFR 2.1093: 2015 KDB 865664 – D01 v01r04 KDB 865664 – D02 v01r02 KDB 648474 – D04 v01r03 IEEE 1528 – 2013 RSS 102 - Issue 5
Name of Engineer	Stephen Dodd

1.2 BRIEF SUMMARY OF RESULTS

The measurements shown in this report were made in accordance with the procedures specified KDB 447498 D01 v06 General RF Exposure Guidance.

The maximum 1 g volume averaged stand-alone SAR found during this Assessment:

Max 1 g SAR (W/kg) Body	0.59 (Measured)	**0.69** (Scaled)
The maximum 1 g volume averaged SAR level measured for all the tests performed did not exceed the limits for Occupational Use/ Controlled Exposure (W/kg) Partial Body of 8.0 W/kg.		

1.3 TEST RESULTS SUMMARY

1.3.1 System Performance / Validation Check Results

Prior to formal testing being performed a System Check was performed in accordance with KDB 865664 and the results were compared against published data in Standard IEEE 1528-2013. The following results were obtained: -

System performance / Validation results

Date	Frequency (MHz)	Max 1 g SAR (W/kg)*	Percentage Drift on Reference
05/06/2018	1640	33.48	-2.67

*Normalised to a forward power of 1W

1.3.2 Results Summary Tables

Body Specific Absorption Rate (Maximum SAR) 1 g Results

Test Position	Channel	Frequency (MHz)	Measured Average Power (dBm)	Tune Up (dBm)	Measured 1 g SAR (W/kg)	Scaled 1 g SAR (W/kg)	Scan Figure Number
13.5 mm Separation Distance – Front Face	1	1616.02	37.55	38.20	0.59	**0.69**	2
13.5 mm Separation Distance – Rear Face	1	1616.02	37.55	38.20	0.26	0.30	3
Limit for Occupation (controlled Exposure) 8.0 W/kg (1 g) KDB 643646 D01 - Testing of other required channels was not necessary as the SAR was ≤ 3.5 W/kg							

1.3.3 Standalone SAR Test Exclusion Considerations (KDB 447498 D01)

The 1 g SAR Test exclusion thresholds for 100 MHz to 6 GHz *test separation distances* ≤ 50 mm are determined by:

[(*max power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] [√f* ($_{GHz}$)*]* ≤ 3.0, where

- f ($_{GHz}$) is the RF channel transmit frequency in GHz.
- Power and distance are rounded to the nearest mW and mm before calculation.
- The result is rounded to one decimal place for comparison.
- When the maximum test separation distance is < 5 mm, a distance of 5 mm is applied.

Band	Frequency (MHz)	Power (dBm)	Power (mW)	Test Position	Distance (mm)	Threshold	Test Exclusion
1616.02 – 1626.48 MHz	1616.02	38.2	6606.93	Body	13.5	622.1	No

1.3.4 Technical Description

The equipment under test (EUT) was a QinetiQ Bracer™ PTT Handset, Part Number 10073537-101 for occuptional use. A full technical description can be found in the manufacturer's documentation.

1.3.5 Test Configuration and Modes of Operation

The testing was performed with an integral battery supplied by QinetiQ and manufactured by Lincad.

The radio unit does not include an internal microphone or speaker therefore no head SAR or Front of Face PTT assessment was required. The remote speaker / microphone (RSM) is of a non-radiating type.

For body SAR assessment, testing was performed for the 1616.02 – 1626.48 MHz frequency band at maximum power.

The intended use of the radio is to be positioned against the body in holder attached to a vest worn by the user. The worst - case separation distance created by the vest of 13.5 mm was used for body testing. Although the radio can be removed from the holder for use, the user would still be wearing the vest, covering the trunk of the body. As the radio can be placed in the pocket with either the front or rear face positioned towards the user, both faces were assessed for SAR.

The device was positioned at a separation distance of 13.5 mm from the bottom of the Elliptical flat phantom for all body testing. The Elliptical Phantom has dimensions of: 600 mm major axis and a 400 mm minor axis with a shell thickness of 2.00 mm. The phantom was filled to a minimum depth of 150 mm with the appropriate Body simulant liquid. The dielectric properties were in accordance with the requirements specified in KDB 865665.

For each scan, the EUT was configured into a continuous transmission test mode having a worst case scenario duty cycle of 9.2 %, using software provided by QinetiQ.

Included in this report are descriptions of the test method; the equipment used and an analysis of the test uncertainties applicable and diagrams indicating the locations of maximum SAR for each test position.

1.3.6 Deviations from Standard

The EUT had various flying leads, a programming interface PCB enabling programming into the correct test configuration and a conducted port which would not be on final production units. This was positioned as far as possible away from the radiating antenna to avoid any coupling effects.

1.4 POWER MEASUREMENTS

1.4.1 Method

Conducted power measurements were made using a power meter.

1.4.2 Conducted Power Measurements

Iridium 1616.02 – 1626.48 MHz

Channel	Frequency (MHz)	Average Power (dBm)	Tune Up Value (dBm)
1	1616.02	37.55	38.20
126	1621.23	37.50	38.20
252	1626.48	37.50	38.20

1.5 PTT DUTY CYCLE

1.5.1 Requirement

If a device has push-to-talk capability, a minimum duty cycle of 50% (on-time) shall be used in the evaluation. A lower duty cycle is permitted only if the transmission duty cycle is an inherent property of the technology or of the design of the equipment and not under user control. Proof of the various on-off durations and a detailed method of calculation of the average power shall be included in the SAR evaluation.

The EUT was operated in continuous transmit (100 % PTT on). However, due to the characteristics of the EUT's Iridium satellite radio technology, the transmitter is specified as being active for 9.2 % of the time due to the inherent duty factor.

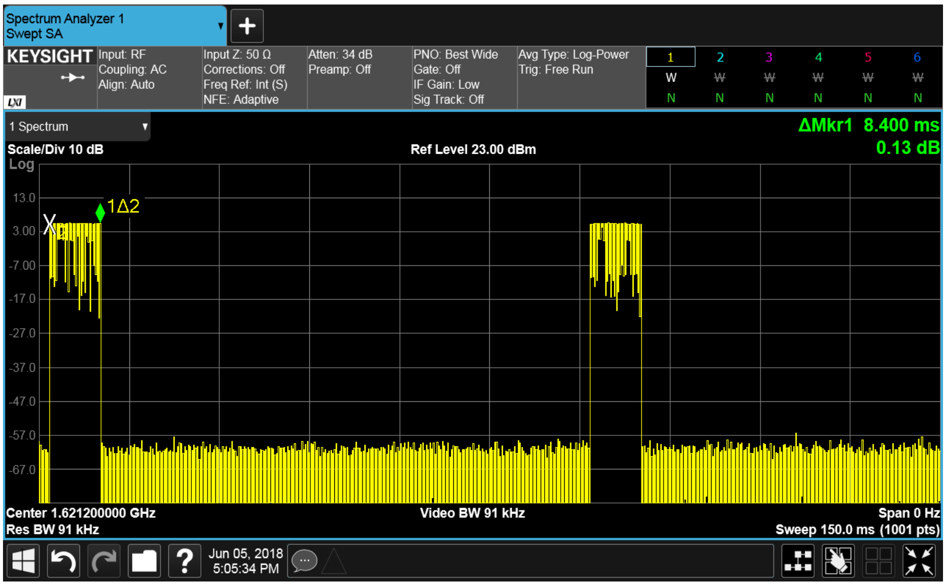
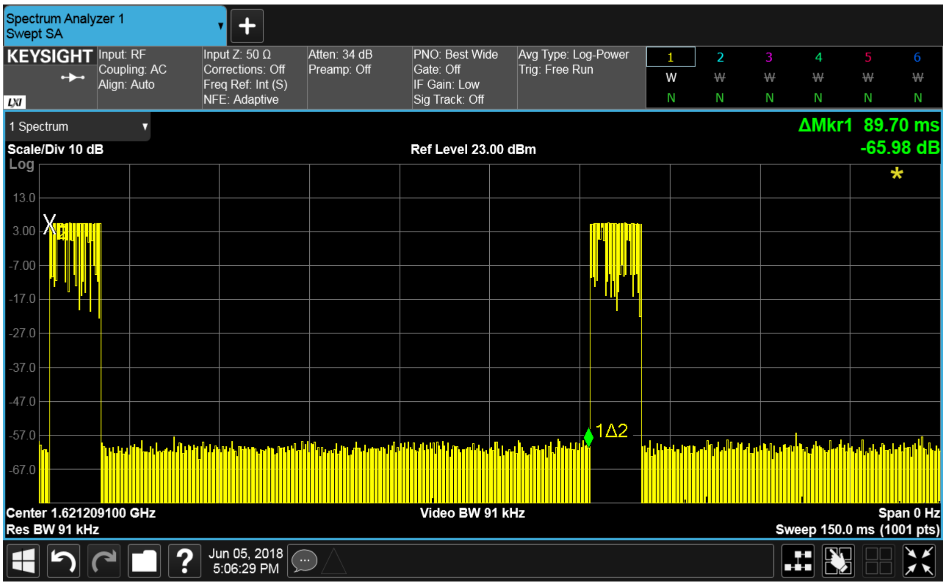

Spectrum Analyzer 1
Swept SA
Input: RF
Coupling: AC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
NFE: Adaptive
Atten: 34 dB
Preamp: Off
PNO: Best Wide
Gate: Off
IF Gain: Low
Sig Track: Off
Avg Type: Log-Power
Trig: Free Run
ΔMkr1 8.400 ms
0.13 dB
Scale/Div 10 dB
Ref Level 23.00 dBm
Center 1.621200000 GHz
Res BW 91 kHz
Video BW 91 kHz
Span 0 Hz
Sweep 150.0 ms (1001 pts)
Jun 05, 2018
5:05:34 PM

Figure 1: Burst time


Spectrum Analyzer 1
Swept SA
Input: RF
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Preamp: Off
PNO: Best Wide
Gate: Off
IF Gain: Low
Sig Track: Off
Avg Type: Log-Power
Trig: Free Run
ΔMkr1 89.70 ms
-65.98 dB
Scale/Div 10 dB
Ref Level 23.00 dBm
Center 1.621209100 GHz
Res BW 91 kHz
Video BW 91 kHz
Span 0 Hz
Sweep 150.0 ms (1001 pts)
Jun 05, 2018
5:06:29 PM

Figure 2: Frame Length

SECTION 2

TEST DETAILS

Specific Absorption Rate Testing of the
QinetiQ Bracer™ PTT Handset, Part Number 10073537-101

2.1 DASY5 MEASUREMENT SYSTEM

2.1.1 System Description

The DASY5 system for performing compliance tests consists of the following items:

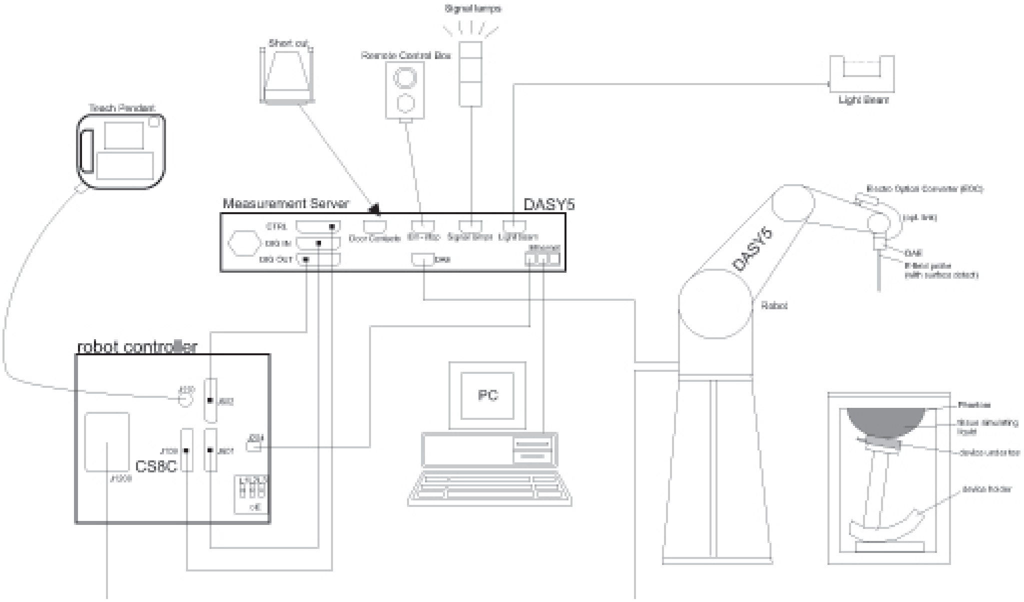

Figure 3 System Description Diagram

A standard high precision 6-axis robot (Stäubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics
(DAE).

An isotropic field probe optimized and calibrated for the targeted measurement.

A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.

The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.

The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.

A computer running Win7 professional operating system and the DASY5 software.

Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.

The phantom, the device holder and other accessories according to the targeted measurement.

2.1.2 Probe Specification

The probes used by the DASY system are isotropic E-field probes, constructed with a symmetric design and a triangular core. The probes have built-in shielding against static charges and are contained within a PEEK enclosure material. These probes are specially designed and calibrated for use in liquids with high permittivities. The frequency range of the probes are from 6 MHz to 6 GHz.

2.1.3 Data Acquisition Electronics

The data acquisition electronics (DAE4 or DAE3) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock.

The mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection. The input impedance of both the DAE4 as well as of the DAE3 box is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

2.1.4 SAR Evaluation Description

The DASY5 software includes all numerical procedures necessary to evaluate the spatial peak SAR values.

Based on the IEEE 1528 standard, a new algorithm has been implemented. The spatial-peak SAR can be computed over any required mass.

The base for the evaluation is a "cube" measurement in a volume of 30 mm^3 (7x7x7 points). The measured volume must include the 1 g and 10 g cubes with the highest averaged SAR values. For that purpose, the centre of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan. If the 10 g cube or both cubes are not entirely inside the measured volumes, the system issues a warning regarding the evaluated spatial peak values within the Post processing engine (SEMCAD X). This means that if the measured volume is shifted, higher values might be possible. To get the correct values you can use a finer measurement grid for the area scan. In complicated field distributions, a large grid spacing for the area scan might miss some details and give an incorrectly interpolated peak location.

The entire evaluation of the spatial peak values is performed within the Post-processing engine (SEMCAD X). The system always gives the maximum values for the 1 g and 10 g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

1. extraction of the measured data (grid and values) from the Zoom Scan
2. calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
3. generation of a high-resolution mesh within the measured volume
4. interpolation of all measured values from the measurement grid to the high-resolution grid
5. extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
6. calculation of the averaged SAR within masses of 1 g and 10 g

2.1.5 Interpolation, Extrapolation and Detection of Maxima

The probe is calibrated at the centre of the dipole sensors which is located 1 to 2.7 mm away from the probe tip. During measurements, the probe stops shortly above the phantom surface, depending on the probe and the surface detecting system. Both distances are included as parameters in the probe configuration file. The software always knows exactly how far away the measured point is from the surface. As the probe cannot directly measure at the surface, the values between the deepest measured point and the surface must be extrapolated.

In DASY5, the choice of the coordinate system defining the location of the measurement points has no influence on the uncertainty of the interpolation, Maxima Search and extrapolation routines. The interpolation, extrapolation and maximum search routines are all based on the modified Quadratic Shepard's method. Thereby, the interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation. The DASY5 routines construct a once-continuously differentiable function that interpolates the measurement values as follows:

For each measurement point a trivariate (3-D) / bivariate (2-D) quadratic is computed.
It interpolates the measurement values at the data point and forms a least-square fit to neighbouring measurement values. The spatial location of the quadratic with respect to the measurement values is attenuated by an inverse distance weighting. This is performed since the calculated quadratic will fit measurement values at nearby points more accurate than at points located further away.

After the quadratics are calculated for at all measurement points, the interpolating function is calculated as a weighted average of the quadratics.

There are two control parameters that govern the behaviour of the interpolation method. One specifies the number of measurement points to be used in computing the least-square fits for the local quadratics. These measurement points are the ones nearest the input point for which the quadratic is being computed. The second parameter specifies the number of measurement points that will be used in calculating the weights for the quadratics to produce the final function. The input data points used there are the ones nearest the point at which the interpolation is desired. Appropriate defaults are chosen for each of the control parameters

The trivariate quadratics that have been previously computed for the 3-D interpolation and whose input data are at the closest distance from the phantom surface, are used to extrapolate the fields to the surface of the phantom.

To determine all the field maxima in 2-D (Area Scan) and 3-D (Zoom Scan), the measurement grid is refined by a default factor of 10 and the interpolation function is used to evaluate all field values between corresponding measurement points. Subsequently, a linear search is applied to find all the candidate maxima. In a last step, non-physical maxima are removed and only those maxima which are within 2 dB of the global maximum value are retained.

In the Area Scan, the gradient of the interpolation function is evaluated to find all the extrema of the SAR distribution. The uncertainty on the locations of the extrema is less than 1/20 of the grid size. Only local maxima within 2 dB of the global maximum are searched and passed for the Zoom Scan measurement.

In the Zoom Scan, the interpolation function is used to extrapolate the Peak SAR from the lowest measurement points to the inner phantom surface (the extrapolation distance). The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1 % for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5 mm.

2.1.6 Averaging and Determination of Spatial Peak SAR

The interpolated data is used to average the SAR over the 1 g and 10 g cubes by spatially discretising the entire measured volume. The resolution of this spatial grid used to calculate the averaged SAR is 1mm or about 42875 interpolated points. The resulting volumes are defined as cubical volumes containing the appropriate tissue parameters that are cantered at the location. The location is defined as the centre of the incremental volume (voxel).

The spatial-peak SAR must be evaluated in cubical volumes containing a mass that is within 5%of the required mass. The cubical volume centred at each location, as defined above, should be expanded in all directions until the desired value for the mass is reached, with no surface boundaries of the averaging volume extending beyond the outermost surface of the considered region. In addition, the cubical volume should not consist of more than 10 % of air. If these conditions are not satisfied, then the centre of the averaging volume is moved to the next location. Otherwise, the exact size of the final sampling cube is found using an inverse polynomial approximation algorithm, leading to results with improved accuracy. If one boundary of the averaging volume reaches the boundary of the measured volume during its expansion, it will not be evaluated at all. Reference is kept of all locations used and those not used for averaging the SAR. All average SAR values are finally assigned to the centred location in each valid averaging volume.

All locations included in an averaging volume are marked to indicate that they have been used at least once. If a location has been marked as used but has never been assigned to the centre of a cube, the highest averaged SAR value of all other cubical volumes which have used this location for averaging is assigned to this location. Only those locations that are not part of any valid averaging volume should be marked as unused. For the case of an unused location, a new averaging volume must be constructed which will have the unused location centred at one surface of the cube. The remaining five surfaces are expanded evenly in all directions until the required mass is enclosed, regardless of the amount of included air. Of the six possible cubes with one surface centred on the unused location, the smallest cube is used, which still contains the required mass.

If the final cube containing the highest averaged SAR touches the surface of the measured volume, an appropriate warning is issued within the Post-processing engine.

2.2 BODY SAR TEST RESULTS

SOFTWARE VERSION:	52.8.8(1258)	**AMBIENT TEMPERATURE:**	22.6 °C
DATE:	05/06/2018	**RELATIVE HUMIDITY:**	47.2 %
PHANTOM:	QD OVA 004 Ax	**CONDUCTIVITY:**	1.363 S/m
DUT CONFIGURATION:	Body Worn – RSM attached	**RELATIVE PERMITTIVITY:**	54.384 ε_r
DUT POSITION:	13.5 mm separation distance - Front Face	**LIQUID TEMPERATURE:**	21.9 °C
RAT:	N/A	**SCAN TYPE:**	Full
FREQUENCY:	1616.02 MHz	**DRIFT:**	-0.09 dB
MODULATION:	DQPSK	**PEAK SAR:**	0.88 W/kg
DUTY CYCLE:	9.2 %	**SAR (1 g):**	0.69 W/kg

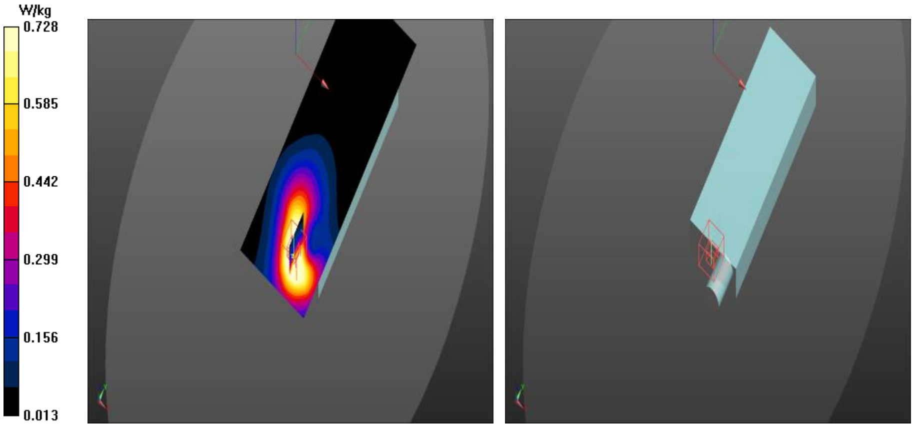

Figure 4: Body SAR Results for the 10073537-101 Bracer™ PTT Handset at 1616.02 MHz.

SOFTWARE VERSION:	52.8.8(1258)	**AMBIENT TEMPERATURE:**	22.6 °C
DATE:	05/06/2018	**RELATIVE HUMIDITY:**	47.2 %
PHANTOM:	QD OVA 004 Ax	**CONDUCTIVITY:**	1.363 S/m
DUT CONFIGURATION:	Body Worn – RSM attached	**RELATIVE PERMITTIVITY:**	54.384 ε_r
DUT POSITION:	13.5 mm separation distance - Rear Face	**LIQUID TEMPERATURE:**	21.9 °C
RAT:	N/A	**SCAN TYPE:**	Full
FREQUENCY:	1616.02 MHz	**DRIFT:**	-0.16 dB
MODULATION:	DQPSK	**PEAK SAR:**	0.38 W/kg
DUTY CYCLE:	9.2 %	**SAR (1 g):**	0.30 W/kg

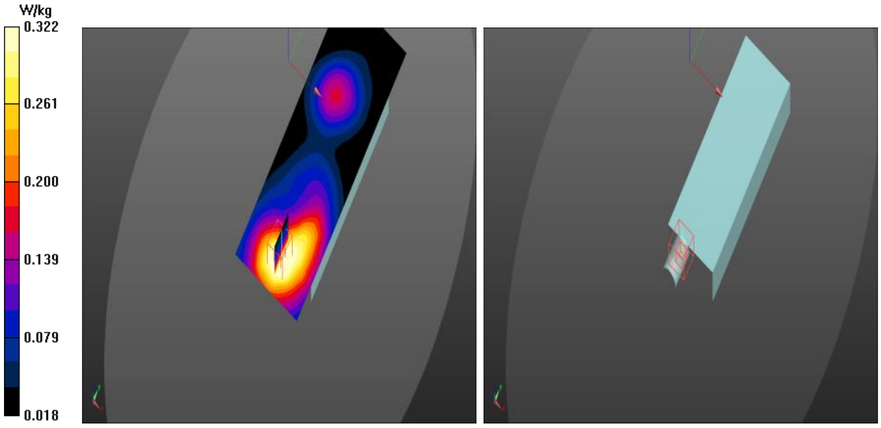

Figure 5: Body SAR Results for the 10073537-101 Bracer™ PTT Handset at 1616.02 MHz.

SECTION 3

TEST EQUIPMENT USED

3.1 TEST EQUIPMENT USED

The following test equipment was used at TÜV SÜD Product Service:

Instrument Description	Manufacturer	Model Type	TE Number	Cal Period (months)	Calibration Due Date
10MHz - 2.5GHz, Amplifier	IndexSar Ltd	VBM2500-3	0051	-	O/P Mon
Power Sensor	Rohde & Schwarz	NRV-Z1	0178	12	08-Jun-2018
Power Sensor	Rohde & Schwarz	NRV- Z1	3563	12	08-Jun-2018
P-Series Power Meter	Agilent Technologies	N1911A	3981	12	29-Sep-2018
Power Sensor	Agilent Technologies	N1921A	3983	12	29-Sep-2018
Signal Generator	Hewlett Packard	ESG4000A	61	12	14-Jul-2018
Attenuator (20dB, 10W)	Weinschel	37-20-34	482	12	01-Nov-2018
Bi-directional Coupler	IndexSar Ltd	7401 (VDC0830-20)	2414	-	O/P Mon
Cable	Florida Labs	KMS-180SP-39.4-KMS	4519	12	20-Dec-2018
2M SMA Cable	Florida Labs	SMS-235SP-78.8-SMS	4518	12	20-Dec-2018
Thermometer	Fluke	51	3172	12	29-Nov-2018
Hygrometer	Rotronic	I-1000	2784	12	09-May-2019
Dual Channel Power Meter	Rohde & Schwarz	NRVD	2979	12	08-Jun-2018
Data Acquisition Electronics	Speag	DAE 4 - SD 000 D04 BM	4689	12	15-Dec-2018
Measurement Server	Speag	DASY 5 Measurement Server	4692	-	TU
Elliptical Phantom	Speag	ELI Phantom	4699	-	TU
Dosimetric SAR Probe	Speag	EX3DV4	4700	12	15-Dec-2018
Mounting Platform for TX90XL Robot and Phantoms	Speag	MP6C-TX90XL Mounting Platform Extended	4702	-	TU
Robot	Speag	TX90 XLspeag Robot	4704	-	TU
EUT Holder	Speag	N/A	3870	-	TU
EUT Holder	Speag	MDA4WTV5RLAP	4694	-	TU
MBBL Fluid	Speag	Batch 2	N/A	Weekly	11-Jun -2018
1640 MHz Dipole	Speag	D1640V2	4796	12	12-Dec-2018

TU - Traceability Unscheduled
O/P Mon - Output Monitored using calibrated equipment

3.2 TEST SOFTWARE

The following software was used to control the TÜV SÜD Product Service DASY System.

Instrument	Version Number
DASY system	52.8.8(1258)

3.3 DIELECTRIC PROPERTIES OF SIMULANT LIQUIDS

The fluid properties of the simulant fluids used during routine SAR evaluation meet the dielectric properties required KDB 865664.

The dielectric properties of the tissue simulant liquids used for the SAR testing at TÜV SÜD Product Service are as follows:

Fluid type and Frequency	Relative Permittivity Target	Relative Permittivity Measured	Conductivity Target	Conductivity Measured
MBBL - 1640MHz	53.72	54.35	1.42	1.38

Note: Permittivity and conductivity values at 1640 MHz are not part of the original data referenced within Appendix A of KDB 865664 D01. The target values were linearly interpolated between the values in this table that are immediately above and below this frequency.

3.4 TEST CONDITIONS

3.4.1 Test Laboratory Conditions

Ambient temperature: Within +15°C to +35°C.
The actual temperature during the testing ranged from 22.6°C to 22.6°C.
The actual humidity during the testing ranged from 47.2% to 47.2% RH.

3.4.2 Test Fluid Temperature Range

Frequency (MHz)	Body / Head Fluid	Min Temperature °C	Max Temperature °C
1640	Body	21.9	21.9

3.4.3 SAR Drift

The maximum SAR Drift was recorded as -0.16 dB.

3.5 MEASUREMENT UNCERTAINTY

Body, Full SAR Measurements, 300 MHz to 3 GHz Using Probe EX3DV4 - SN3759

Source of Uncertainty	Uncertainty ± %	Probability distribution	Div	c_i (1 g)	Standard Uncertainty ± % (1 g)	V_i (V_{eff})
Measurement System						
Probe calibration	6.0	N	1.00	1.00	6.0	Infinity
Axial Isotropy	4.7	R	1.73	0.70	1.9	Infinity
Hemispherical Isotropy	9.6	R	1.73	0.70	3.9	Infinity
Boundary effect	1.0	R	1.73	1.00	0.6	Infinity
Linearity	4.7	R	1.73	1.00	2.7	Infinity
System Detection limits	1.0	R	1.73	1.00	0.6	Infinity
Modulation response	2.4	R	1.73	1.00	1.4	Infinity
Readout electronics	0.3	N	1.00	1.00	0.3	Infinity
Response time	0.8	R	1.73	1.00	0.5	Infinity
Integration time	2.6	R	1.73	1.00	1.5	Infinity
RF ambient noise	3.0	R	1.73	1.00	1.7	Infinity
RF ambient reflections	3.0	R	1.73	1.00	1.7	Infinity
Probe positioner	0.4	R	1.73	1.00	0.2	Infinity
Probe positioning	2.9	R	1.73	1.00	1.7	Infinity
Max SAR Evaluation	2.0	R	1.73	1.00	1.2	Infinity
Test sample related						
Device Positioning	2.9	N	1.00	1.00	2.9	145
Device Holder	3.6	N	1.00	1.00	3.6	5
Input Power and SAR Drift	5.0	R	1.73	1.00	0.3	Infinity
Phantom and Setup						
Phantom uncertainty	6.1	R	1.73	1.00	3.5	Infinity
SAR Correction	1.9	R	1.73	1.00	1.1	Infinity
Liquid conductivity Meas.	2.5	R	1.73	0.78	1.1	Infinity
Liquid Permittivity Meas.	2.5	R	1.73	0.23	0.3	Infinity
Temp. Unc. Conductivity	3.4	R	1.73	0.78	1.5	Infinity
Temp. Unc. Permittivity	0.4	R	1.73	0.23	0.1	Infinity
Combined Standard Uncertainty		**RSS**			10.8	361
Expanded Standard Uncertainty		**K=2**			21.6	

SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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